



Policy Brief

Harnessing biotechnology to empower women and the youth in South Africa

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Executive summary:

Biotechnology is a rapidly advancing field with the potential to address numerous global challenges, including those that disproportionately affect women and youth. This policy brief highlights the manifold ways in which biotechnology can benefit women and the youth by improving healthcare, promoting food and nutritional security, economic empowerment, enhancing education, and advancing gender equality. To harness these benefits, policymakers must invest in

biotechnology research, development, and education, ensuring equitable access for all.

Women and children often bear the brunt of food insecurity and malnutrition. The development of biotechnology crops not only improves crop yields but also has the potential to address specific challenges faced by women and children, such as increased workload, health concerns, and nutritional deficiencies.



Figure 1: Bt-maize produced via biotechnology



Figure 2: Women working in agriculture (cabbage farm)

Introduction:

Biotechnology encompasses a wide range of technologies that use biological systems to develop innovative products and processes. Its potential to transform various health and agricultural sectors makes it a powerful tool for addressing the unique challenges faced by women and youth globally. The youth are often forced to leave school early, involuntarily bowing out of educational opportunities, to make a living to support their families. In some cases, women are left in the village to take care of their homes as the men migrate to the cities to earn a living.



Figure 3: Tissue-cultured crops in the laboratory



Figure 4: Cultivation of improved food crops in the field

Agricultural Biotechnology:

Biotechnology takes the drudgery out of farming production for women and youth. Biotech crops require less production inputs such as insecticides/pesticides. This means there is no need to spray for pests and diseases as these crops are bred to be resistant to them. In addition, farmers do not have to worry about controlling weeds when growing herbicide-tolerant crops.

Advanced crop breeding techniques such as plant tissue culture, marker-assisted selection, and genome editing, can improve food security, boost agricultural productivity, and increase income for women and youth in resource-constrained areas, who are involved in agricultural production. With the increased income from farming, the women and the youth are better able to take care of themselves and their household needs. The application of biotechnology also frees up time and provides opportunities for women and the youth in education since they do not have to spend hours managing their fields.

Education

STEM Education: Investing in biotechnology education in schools and universities can encourage young women and girls to pursue STEM fields and careers, addressing gender imbalances in these industries.

Online Learning: With the adoption of biotechnology, women and youth stand a better chance of gaining access to online learning tools and/or portals such as webinars and training workshops that are available from time to time. These are the modern mediums of communication regularly used by agricultural scientists to disseminate information.

Educational Resources: Biotechnology offers opportunities for the creation of educational content and resources that cater to different learning styles, promoting inclusivity.

Seed Production: Through seed production and seed systems training, women and children can be empowered to be active participants in the bioeconomy strategy of the country. The training will help the women and youth to produce high-quality seed products that are highly marketable and acceptable by the retailers and consumers.

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Alignment with Existing Policies:

National Development Plan (NDP):

Biotechnology aligns with the NDP's goals of eradicating poverty, reducing inequality, and promoting inclusive economic growth. By enhancing agricultural productivity, biotechnology can contribute to the economic empowerment of women and improve living conditions for their children.

Agricultural Policy Action Plan (APAP):

The APAP recognizes the need for innovative solutions to transform the agricultural sector. Biotechnology, specifically genetically modified crops, can play a pivotal role in achieving the APAP's objectives of increasing agricultural productivity, ensuring food security, and promoting sustainable resource use.

Benefits of Biotechnology crops:

Increased Income for Women: Women engaged in farming biotech crops can experience a significant boost in income through increased crop yields. This economic empowerment contributes to greater financial independence, enabling women to invest in their children's education, healthcare, and overall well-being.

Nutritional Benefits: Improved yields contribute to a more stable and diverse food supply. This is particularly crucial for child nutrition, as a consistent and nutritious diet positively impacts their growth, development, and resistance to diseases.

Climate Resilience and Food Security:

Through biotechnology, scientists constantly strive to counter the negative effects of climate change. Climate-smart technology develops crops with genes that offer tolerance to drought and pests ensuring that resource-poor farmers will have access to better quality seed to improve productivity and livelihood. This resilience ensures a more stable food supply, reducing the risk of hunger and malnutrition for children.

Youth education: With better yields from climate-smart crops, the youth can improve their educational status and as opposed to dropping out of school to work on the land to feed their families.



Figure 5: Yield of a farmer using Bt maize



Figure 6: The female farmer with her extension officers

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Policy Recommendations:

Capacity Building: Invest in capacity-building programmes to educate women, youth, farmers, and healthcare providers about the benefits and responsible adoption of biotechnology. This includes training on cultivation practices, health implications, and environmental stewardship.

Public Awareness Campaigns: Implement public awareness campaigns to dispel myths and misinformation surrounding biotechnology, particularly the false myth that it was designed to harm women and the youth on the African continent.

Research and Development Support: Allocate resources to support research and development in biotechnology, encouraging the development of crops tailored to the specific needs of South African communities. This includes crops with enhanced nutritional content and resilience to local environmental challenges.

Monitoring and Evaluation: Implement robust monitoring and evaluation mechanisms to assess the impact of biotechnology adoption on women and youth. Regular assessments will enable policymakers to make informed decisions and adjustments to existing policies and programmes.

Conclusion:

The responsible and ethical application of biotechnology in agriculture and health, in line with existing policies, can improve the lives of women and the youth in South Africa. By leveraging the potential of genetically modified crops, policymakers can address key challenges of food security, health, and economic empowerment and to a more sustainable and inclusive future for all.







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